

## **Emissivity Measurements and Modeling of Silicon Related Materials - An Overview**

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In this paper, an overview of the emissivity measurements and modeling of silicon-related materials is presented. The experimental component of this study is based on results obtained utilizing spectral emissometry. An analysis of the comparison of the measured data with other similar approaches is made. In particular, the celebrated work of Sato is revisited to understand the implications of his study. Simulations of the temperature and wavelength dependent emissivity of silicon based on phenomenological approaches in optics as well as the semi-empirical MULTIRAD model are presented here. A special importance to the low temperature emissivity of silicon is given. The influence of doping concentration, surface roughness and coatings on the emissivity of silicon as function of temperature is discussed. The study concludes with limitations of spectral emissometry as an in-situ measurement technique.